Practitioner's Docket No. INP-0007

"PATENT"

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Paul J. Berlowitz, et al.

U.S. Serial No.: 09/625,249

Filed: July 25, 2000

IMPROVED STABILITY FISCHER-TROPSCH DIESEL FUEL AND A PROCESS FOR ITS PRODUCTION

Before The Examiner:

Margaret B. Medley

Group Art Unit 1714

Commissioner for Patents
Washington, D.C. 20231

Sir:

DECLARATION TRAVERSING GROUNDS FOR REJECTION (37 C.F.R. § 1.132)

I, Paul J. Berlowitz, declare that:

1. I am an employee of ExxonMobil Research and Engineering which is assignee of this invention. I have been an employee for 13 years. I have worked for Corporate Strategic Research since 1995. I received my Doctorate degree in Chemical Engineering from Northwestern University in 1986.

2. I have read and am familiar with the Final Office Action dated October 3, 2001.

3. I have read and am familiar with the Application.

4. I understand that the present invention relates to stable, inhibited middle distillates and their preparation. More particularly, this invention relates to stable, inhibited middle distillates, useful as fuels, e.g., kerosene, diesel, or as fuel blending components, in which a Fischer-Tropsch derived distillate and a virgin distillate are blended.

5. I understand that one of the Examiner's objections to this invention is that it is obvious in light of other ExxonMobil co-owned patents which teach blending various Fischer-Tropsch fractions with any other hydrocarbon streams due to the comprising transitional claim language.

6. The present invention claims unexpectedly enhanced stability for any range of blends of virgin distillate and Fischer-Tropsch product so long as the blended sulfur is equal to or greater than 2 ppm.

7. For the information on the attached datasheet:

   The stream designation AGC-21 is the Fischer-Tropsch fuel referenced in examples 1 and 2 of the 625,249 Application. Different "batches" indicated on the datasheet indicate different production runs of this Fischer-Tropsch fuel.

   The Stream Designation FS-8153 Baton Rouge LCCO is a Light Catalytically Cracked Oil that would be an appropriate blending possibility as claimed in USP 5,689,031, USP 5,766,274 and USP 5,807,413. Also, this would be an appropriate blending stream for Claim 11 of USP 6,274,029 and USSN 08/971,254 claims 1-2, 4 and 5-19.

8. I submit the following data which demonstrates that blends of a Fischer-Tropsch fuel with a hydrocarbon stream that <u>is not</u> a 250 °F to 750 °F virgin distillate cut, <u>will not</u> produce the unexpectedly better stability properties found when blending of a Fischer-Tropsch fuel with a hydrocarbon stream that <u>is</u> a 250 °F to 750 °F virgin distillate cut

   Table 1 details the Peroxide Number v. Time for various blends of the Samples.

9. In Table 1, the blends designated 1010, 1012 and 1034 all are examples of the AGC-21 blended with a stream that would satisfy the requirements of the prior art listed for double patenting rejections by the Examiner in her Final Office Action and listed in paragraph 7 above. Each of these blends has more than 2 ppm sulfur. Each of these blends shows worse stability results than that of the individual components (blends 1008 and 1031) when tested by the same test used in the current Application.

TABLE 1

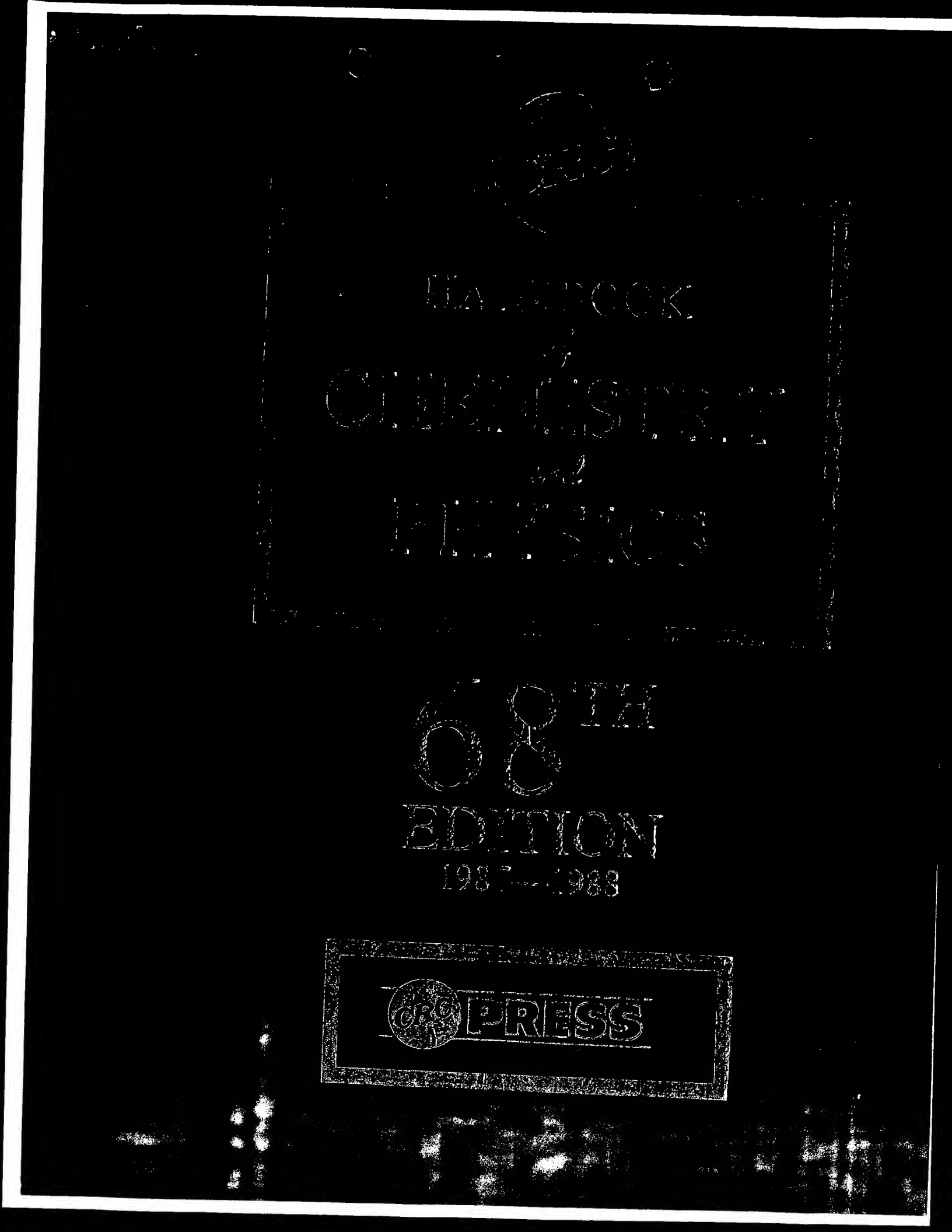
Blend #	Composition %	Component	Initial Peroxide	Final (28 Days) Peroxide	Sulfur, ppm
1008	100	FS-8153 Baton Rouge LCCO (Cat Cycle Oil)	12.9	115.4	1250
1010	50	FS-8153 Baton Rouge LCCO (Cat Cycle Oil)			
	50	AGC-21 (First batch 250-700F)	34.3	166	625
1012	50	FS-8153 Baton Rouge LCCO (Cat Cycle Oil)			
	50	AGC-21 (second batch 200-700F)	0.75	188	625
1034	50	FS-8153 Baton Rouge LCCO (Cat Cycle Oil)			
	50	AGC-21 (third batch 250-700)	0.25	120	625
1001	100	AGC-21 first batch	0.1	0.3	0
1009	100	AGC-21 second batch	0.04	3.8	0
1031	100	AGC-21 third batch	0	7.5	0
1031	100	AGC-21 thrid batch aged 8wks room temp	0	58.7	0

10. These data demonstrate that blending Fischer-Tropsch 250 °F – 750°F streams with LCCO does not produce the unexpected stability effects found when blending Fischer-Tropsch 250 °F – 750°F streams with a virgin distillate stream.

Paul J. Berlowitz

6/14/01
Date

NLF:kak
6/22/01
P1998J057-US2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ity	Ref.	No.	Name, Synonyms, and Formula	Mol. wt.	Color, crystalline form, specific rotation and λ_{max} (log ε)	b.p. °C	m.p. °C	Density	n_D	Solubility	Ref.
	B1⁴, 392	1562	Heptane, 1-fluoro or Heptyl fluoride $CH_3(CH_2)_5CH_2F$	118.12	.....	117.9	−73	$0.8062^{20/4}$	1.3854^{20}	eth, ace, bz, peth	B1⁴, 387
	B1⁴, 389	1563	Heptane, perfluoro C_7F_{16}	388.05	.....	82.4	−78	1.7333^{20}	1.2618^{20}	al, eth, ace, chl	B1⁴, 388
z, chl	B1⁴, 390	1564	Heptane, 1-iodo or Heptyl iodide $CH_3(CH_2)_5CH_2I$	226.10	.....	204, 76.1[19]	−48.2	$1.3791^{20/4}$	1.4904^{20}	al, eth, ace, chl	B1⁴, 393
hl, aa	B1⁴, 390	1565	Heptane, 2-iodo $CH_3CHI(CH_2)_4CH_3$	226.10	.....	98[20]	.....	1.304^{20}	1.4826	ace, bz	B1⁴, 393
z, chl	B1⁴, 428	1566	Heptane, 2-methyl $C_5H_{11}CH(CH_3)_2$	114.23	.....	117.6, 12.3[10]	−109	$0.6980^{20/4}$	1.3949^{20}	al eth, ace, bz, chl	B1⁴, 428
z, chl	B1⁴, 472	1567	Heptane, 2- methylamino $C_5H_{11}CH(CH_3)NHCH_3$	129.25	.....	155	.....	.....	.....	.....	B4⁴, 743
	B1⁴, 390	1568	Heptane, 3-methyl (d) $C_2H_5CH(CH_3)C_3H_7$	114.23	$[\alpha]^{26}_D$ +9.34	115-8	.....	$0.7075^{16/4}$	1.4002^{16}	al, eth, ace, bz, chl	B1⁴, 429
	B1⁴, 511	1569	Heptane, 3-methyl (dl) $C_2H_5CH(CH_3)C_3H_7$	114.23	.....	119, 13.3[19]	−120.5	$0.7058^{20/4}$	1.3985^{20}	al, eth, ace, bz, chl	B1⁴, 429
	B1⁴, 510	1570	Heptane, 3-methyl (l) $C_2H_5CH(CH_3)C_3H_7$	114.23	.....	117-8[745]	.....	.....	1.3990^{20}	al, eth, ace, bz, chl	B1³, 476
ace, bz	B1⁴, 430	1571	Heptane, 4-methyl $(C_3H_7)_2CHCH_3$	114.23	.....	117.7, 12.4[10]	−121	$0.7046^{20/4}$	1.3979^{20}	al, eth ace, bz, chl	B1⁴, 431
bz, chl	B1⁴, 430	1572	Heptane, 2,2,4,4,6-pentamethyl $(CH_3)_3CHCH_2CH(CH_3)_2CH_2C(CH_3)_3$	170.34	.....	177.8	−67	$0.7463^{20/4}$	$1.4440^{20/D}$	.....	B1⁴, 510
	B1⁴, 390	1573	Heptane, 2,2,4-trimethyl $(CH_3)_3CCH_2CH(CH_3)C_2H_5$	142.28	.....	147.7, 32.9[10]	.....	$0.7275^{20/4}$	1.4092^{20}	bz, chl	B1⁴, 481
chl	B1⁴, 51	1574	Heptane, 3,3,5-trimethyl $CH_3CH_2C(CH_3)_2CH_2CH(CH_3)CH_2CH_3$	142.28	.....	155.7, 38.9[10]	.....	$0.7248^{20/4}$	1.4170^{20}	bz, chl	B1⁴, 483
bz, chl	B1⁴, 47	1575	Heptanedioic acid or Pimelic acid $HO_2C(CH_2)_5CO_2H$	160.17	pr(w)	272[100]sub, 212[10]	106	1.329^{15}	.....	w, al, eth	B2⁴, 2003
	B1⁴, 64	1576	1,7-Heptanediol or Heptamethylene glycol $HO(CH_2)_7OH$	132.20	.....	262, 151[14]	22	$0.9569^{25/4}$	1.4520^{25}	w, al	B1⁴, 2580
ace, bz	B4⁴, 136	1577	2,4-Heptanediol, 3-methyl $C_2H_5CH(OH)CH(CH_3)CH(OH)CH_3$	146.23	.....	115[3]	.....	$0.928^{20/4}$	1.4459^{20}	al	B1, 491
:, bz	B1⁴, 39	1578	2,4-Heptanedione $C_2H_5COCH_2COCH_3$	128.17	.....	174, 70[20]	.....	$0.9411^{28/4}$	.....	.....	B1⁴, 3698
. chl	B1⁴, 39	1579	1-Heptanethiol $CH_3(CH_2)_5CH_2SH$	132.26	.....	177	−43	$0.8427^{20/4}$	1.4521^{20}	al, eth	B1⁴, 1738
, chl	B1⁴, 430	1580	1,4,7-Heptanetriol $(HOCH_2CH_2CH_2)_2CHOH$	148.20	.....	230-2[25], 146[1]	−35	1.075^{16}	1.4725^{20}	w, al, ace	B1⁴, 2787
, chl	B1⁴, 430	1581	2,4,6-Heptanetrione or Diacetyl acetone $(CH_3COCH_2)_2CO$	142.15	lf	121[10]	49	$1.0681^{40/40}$	1.4930^{20}	w, al, eth	B1⁴, 3783
	B1⁴, 513	1582	Heptano amide $CH_3(CH_2)_5CONH_2$	129.20	nd(al)lf(w)	250-8	96	$0.852^{110/4}$	1.4217^{110}	w, al, eth	B2⁴, 963
l	B1³, 117	1583	Heptanoic acid or Enanthic acid $CH_3(CH_2)_5CO_2H$	130.19	.....	223, 116[11]	−7.5	$0.9200^{20/4}$	1.4170^{20}	al, eth, ace	B2⁴, 958
	B1⁴, 2220	1584	Heptanoic acid, 7-amino $H_2N(CH_2)_6CO_2H$	145.20	cr (w, MeOH-peth)	.....	195	.....	.....	w, al	B4³, 1467
e, bz	B1⁴, 457	1585	Heptanoic anhydride $(C_6H_{13}CO)_2O$	242.36	.....	268-71, 164[11.5]	−12.4	$0.9321^{20/4}$	1.4335^{15}	al, eth	B2⁴, 962
, ace, bz	B1⁴, 457	1586	Heptanoic acid, 2-bromo $CH_3(CH_2)_4CHBrCO_2H$	209.08	.....	250d, 147[12]	.....	1.319^{15}	1.471^{18}	eth, ace	B2⁴, 967
, ace, bz	B1⁴, 457	1587	Heptanoic acid, 7-bromo $Br(CH_2)_6CO_2H$	209.08	wh cr(dil al)	280	31	.....	.....	al, eth, ace, bz	B2⁴, 968
.....	B1⁴, 458	1588	Heptanoic acid, butyl ester $CH_3(CH_2)_5CO_2C_4H_9$	186.29	.....	226.2	−67.5	0.8638^{20}	1.4204^{20}	al, eth, ace, bz	B2³, 768
, ace, bz	B1⁴, 458	1589	Heptanoic acid, *iso*-butyl ester $C_6H_{13}CO_2$-*i*-C_4H_9	186.29	.....	208	.....	0.8593^{20}	.....	al, eth, ace, bz	B2¹, 145
ce, bz	B1⁴, 514	1590	Heptanoic acid, ethyl ester or Ethyl heptanoate $CH_3(CH_2)_5CO_2C_2H_5$	158.24	.....	187, 78[14]	−66.1	$0.8817^{20/4}$	1.4100^{20}	al, eth	B2⁴, 960
ce, bz	B1⁴, 458	1591	Heptanoic acid, 7-fluoro $F(CH_2)_6CO_2H$	148.18	.....	133[10]	.....	1.039^{20}	1.4207^{23}	.....	B2⁴, 964
ce, bz	B1⁴, 458	1592	Heptanoic acid, heptyl ester $C_6H_{13}CO_2C_7H_{15}$	228.38	.....	276-8	−33	$0.8649^{20/4}$	1.4320^{20}	al, eth	B2⁴, 961
), ace, bz,	B1⁴, 457	1593	Heptanoic acid, hexyl ester $C_6H_{13}CO_2C_6H_{13}$	214.35	.....	261	−48	0.8611^{20}	1.429^{15}	al, eth, ace, bz	B2³, 768
		1594	Heptanoic acid, 7-iodo $I(CH_2)_6CO_2H$	256.08	lf(dil al)	.....	49-51	.....	.....	al, eth, ace, bz	B2⁴, 969